Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (currently amended). A cocrystal comprising a salt and a neutral guest, wherein the salt comprises an active agent and a counterion, wherein the guest is a carboxylic an acid having at least three carbon atoms, and the cocrystal is not a solvate and when the acid is a carboxylic acid, the acid has at least three carbon atoms.

Claim 2 (original). The cocrystal of claim 1, wherein the guest is a carboxylic acid having at least four carbon atoms.

Claim 3 (original). The cocrystal of claim 1, wherein the guest is selected from the group consisting of the guests set forth in Table 1.

Claim 4 (original). The cocrystal of claim 1, wherein the guest is selected from the group consisting of the guests set forth in Table 2.

Claim 5 (original). The cocrystal of claim 1, wherein the guest is selected from the group consisting of the guests set forth in Table 3.

Claim 6 (currently amended). The cocrystal of claim 1, wherein the guest is a carboxylie an acid selected from the group consisting of:

sorbic acid;

L-(+)-tartaric acid;

citric acid;

benzoic acid;

aspirin;

lactic acid;

fumaric acid;

(S)-(+)-arginine;

glycine;

(S)-(-)-histidine; (S)-(+)-lysine; DL-tartaric acid; (S)-(-)-phenylalanine; (S)-(-)-tyrosine; phenylacetic acid; adipic acid; pyruvic acid; succinic acid; niacin; 4-aminobenzoic acid; o-methylbenzoic acid; valeric acid; maleic acid; 3-methylbutanoic acid; L-glutamic acid; 2,4-dihydroxybenzoic acid; 3-phenylpropionic acid; isocaproic acid; (L)-(+)-isoleucine; L-malic acid; L-2-aminopropionic acid; L-glutamine; L-hydroxyproline; L-proline; L-serine; L-threonine; L-valine; Phenoxyacetic acid; 2-ethylbutyrinc acid; L-leucine; L-asparagine;

levulinic acid;

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(S)-(-)-cysteine;
DL-aspartic acid;
4-hydroxybenzoic acid;
diphenylacetic acid;
glutaric acid;
0-toluic acid;
pivalic acid;
DL-malic acid;
beta-alanine;
(S)-(-)-tryptophan;
malonic acid;
mandelic acid;
glycolic acid;
terephthalic acid;
1-hydroxy-2-naphthoic acid;
4-aminosalicylic acid;
orotic acid;
gallic acid;
gentisic acid;
pamoic acid;
n-butyric acid;
n-hexanoic acid;
2-furancarboxylic acid;
p-acetamidobenzoic acid;
galactaric acid;
lactobionic acid;
2-mercaptobenzoic acid;
3-cyclopentylpropionic acid;
DL-lysine;
cinnamic acid;
dichloroacetic acid;
octanoic acid;
isobutyric acid;
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anisic acid;
enanthoic acid;
hippuric acid;
tiglic acid;
cyclohexanecarboxylic acid;
m-methoxybenzoic acid;
D-(+)-camphoric acid; and
cyclohexylacetic acid.

Claim 7 (currently amended). The cocrystal of claim 1, wherein the guest is **a carboxylic** an acid selected from the group consisting of:

ascorbic acid;
glucoheptonic acid;
sebacic acid;
alginic acid;
cyclamic acid;
ethane-1,2-disulfonic acid;
2-hydroxyethanesulfonic acid;
2-oxo-glutaric acid;
naphthalene-1,5-disulfonic acid;
nicotinic acid;
pyroglutamic acid; and
4-acetamidobenzoic acid.

Claim 8 (original). The cocrystal of claim 1, wherein the guest is selected from the group consisting of benzoic acid, succinic acid, and fumaric acid.

Claim 9 (original). The cocrystal of claim 1, wherein the counterion is a halide.

Claim 10 (original). The cocrystal of claim 9, wherein the counterion is chloride.

Claim 11 (original). The cocrystal of claim 1, wherein the counterion is a positive counterion.

Claim 12 (currently amended). The cocrystal of claim 1, wherein the active agent comprises a secondary or tertiary an amine, and said amine forms a salt with the counterion.

Claim 13 (original). The cocrystal of claim 11, wherein the amine is a tertiary amine.

Claim 14 (original). The cocrystal of claim 1, wherein the active agent comprises an active pharmaceutical ingredient.

Claim 15 (original). The cocrystal of claim 1, wherein the active agent comprises a nutraceutical.

Claim 16 (original). The cocrystal of claim 1, wherein the active agent comprises an agricultural chemical.

Claim 17 (original). The cocrystal of claim 1, wherein the active agent comprises a pigment.

Claim 18 (original). The cocrystal of claim 1, wherein the active agent comprises a dye.

Claim 19 (original). The cocrystal of claim 1, wherein the active agent comprises an explosive.

Claim 20 (original). The cocrystal of claim 1, wherein the active agent comprises a polymer additive.

Claim 21 (original). The cocrystal of claim 1, wherein the active agent comprises a lubricant additive.

Claim 22 (original). The cocrystal of claim 1, wherein the active agent comprises a photographic chemical.

Claim 23 (original). A cocrystal comprising a salt and a neutral guest, wherein the salt comprises an active agent and a counterion, wherein the guest is a strong hydrogen bond donor and is selected from the guests set forth in Table 3.

Claim 24 (original). The cocrystal of claim 23, wherein the guest is a carboxylic acid having at least four carbon atoms.

Claim 25 (original). The cocrystal of claim 23, wherein the guest is selected from the group consisting of the guests set forth in Table 1.

Claim 26 (original). The cocrystal of claim 23, wherein the guest is selected from the group consisting of the guests set forth in Table 2.

Claim 27 (currently amended). The cocrystal of claim 23, wherein the guest is **a earboxylic an** acid selected from the group consisting of:

sorbic acid;

L-(+)-tartaric acid;

citric acid;

benzoic acid;

aspirin;

lactic acid;

fumaric acid;

(S)-(+)-arginine;

glycine;

(S)-(-)-histidine;

(S)-(+)-lysine;

DL-tartaric acid;

(S)-(-)-phenylalanine;

(S)-(-)-tyrosine;

phenylacetic acid;

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adipic acid;
pyruvic acid;
succinic acid;
niacin;
4-aminobenzoic acid;
o-methylbenzoic acid;
valeric acid;
maleic acid;
3-methylbutanoic acid;
L-glutamic acid;
2,4-dihydroxybenzoic acid;
3-phenylpropionic acid;
isocaproic acid;
(L)-(+)-isoleucine;
L-malic acid;
L-2-aminopropionic acid;
L-glutamine;
L-hydroxyproline;
L-proline;
L-serine;
L-threonine;
L-valine;
Phenoxyacetic acid;
2-ethylbutyrinc acid;
L-leucine;
L-asparagine;
levulinic acid;
(S)-(-)-cysteine;
DL-aspartic acid;
4-hydroxybenzoic acid;
diphenylacetic acid;
glutaric acid;
0-toluic acid;
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pivalic acid;
DL-malic acid;
beta-alanine;
(S)-(-)-tryptophan;
malonic acid;
mandelic acid;
glycolic acid;
terephthalic acid;
1-hydroxy-2-naphthoic acid;
4-aminosalicylic acid;
orotic acid;
gallic acid;
gentisic acid;
pamoic acid;
n-butyric acid;
n-hexanoic acid;
2-furancarboxylic acid;
p-acetamidobenzoic acid;
galactaric acid;
lactobionic acid;
2-mercaptobenzoic acid;
3-cyclopentylpropionic acid;
DL-lysine;
cinnamic acid;
dichloroacetic acid;
octanoic acid;
isobutyric acid;
anisic acid;
enanthoic acid;
hippuric acid;
tiglic acid;
cyclohexanecarboxylic acid;
m-methoxybenzoic acid;
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D-(+)-camphoric acid; and cyclohexylacetic acid.

Claim 28 (currently amended). The cocrystal of claim 23, wherein the guest is a carboxylic an acid selected from the group consisting of:

ascorbic acid;
glucoheptonic acid;
sebacic acid;
alginic acid;
cyclamic acid;
ethane-1,2-disulfonic acid;
2-hydroxyethanesulfonic acid;
2-oxo-glutaric acid;
naphthalene-1,5-disulfonic acid;
nicotinic acid;
pyroglutamic acid; and
4-acetamidobenzoic acid.

Claim 29 (original). The cocrystal of claim 23, wherein the guest is selected from the group consisting of benzoic acid, succinic acid, and fumaric acid.

Claim 30 (original). The cocrystal of claim 23, wherein the counterion is a halide.

Claim 31 (original). The cocrystal of claim 30, wherein the counterion is chloride.

Claim 32 (currently amended). The cocrystal of claim 23, wherein the active agent comprises a secondary or tertiary an amine, and said amine forms a salt with the counterion.

Claim 33 (original). The cocrystal of claim 32, wherein the amine is a tertiary amine.

Claim 34 (original). The cocrystal of claim 23, wherein the active agent comprises an active pharmaceutical ingredient.

Claim 35 (original). The cocrystal of claim 23, wherein the active agent comprises a nutraceutical.

Claim 36 (original). The cocrystal of claim 23, wherein the active agent comprises an agricultural chemical.

Claim 37 (original). The cocrystal of claim 23, wherein the active agent comprises a pigment.

Claim 38 (original). The cocrystal of claim 23, wherein the active agent comprises a dye.

Claim 39 (original). The cocrystal of claim 23, wherein the active agent comprises an explosive.

Claim 40 (original). The cocrystal of claim 23, wherein the active agent comprises a polymer additive.

Claim 41 (original). The cocrystal of claim 23, wherein the active agent comprises a lubricant additive.

Claim 42 (original). The cocrystal of claim 23, wherein the active agent comprises a photographic chemical.

Claim 43 (original). A cocrystal comprising a salt and a neutral guest, wherein the salt comprises an active agent and a counterion, and wherein the counterion is not a chloride ion.

Claim 44 (original). The cocrystal of claim 43, wherein the salt is formed from the active agent and a mineral acid, and the mineral acid provides the counterion.

Claim 45 (original). The cocrystal of claim 43, wherein the salt is formed from the active agent and an inorganic acid, and the inorganic acid provides the counterion.

Claim 46 (original). The cocrystal of claim 43, wherein the salt is formed from the active agent and an acid selected from the group consisting of:

sulfuric acid;

phosphoric acid;

hydrobromic and;

nitric acid;

pyrophosphoric acid;

methanesulfonic acid;

thiocyanic acid;

naphthalene-2-sulfonic acid;

1,5-naphthalenedisulfonic acid;

cyclamic acid;

p-toluenesulfonic acid;

maleic acid;

L-aspartic acid;

2-hydroxy-ethanesulfonic acid;

glycerophosphoric acid;

ethanesulfonic acid; and

hydroiodic acid,

and the acid provides the counterion.

Claim 47 (currently amended).

The cocrystal of claim 43, wherein the guest

counterion is a phosphate.

Claim 48 (currently amended). The cocrystal of claim 43, wherein the **guest counterion** is a bromide.

Claim 49 (original). The cocrystal of claim 43, wherein the guest is a carboxylic acid having at least three carbon atoms.

Claim 50 (original). The cocrystal of claim 43, wherein the guest is selected from the group consisting of the guests set forth in Table 1.

Claim 51 (original). The cocrystal of claim 43, wherein the guest is selected from the group consisting of the guests set forth in Table 2.

Claim 52 (original). The cocrystal of claim 43, wherein the guest is selected from the group consisting of the guests set forth in Table 3.

Claim 53 (currently amended). The cocrystal of claim 43, wherein the guest is **a carboxylie** an acid selected from the group consisting of:

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sorbic acid;
L-(+)-tartaric acid;
citric acid;
benzoic acid;
aspirin;
lactic acid;
fumaric acid;
(S)-(+)-arginine;
glycine;
(S)-(-)-histidine;
(S)-(+)-lysine;
DL-tartaric acid;
(S)-(-)-phenylalanine;
(S)-(-)-tyrosine;
phenylacetic acid;
adipic acid;
pyruvic acid;
succinic acid;
niacin;
4-aminobenzoic acid;
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o-methylbenzoic acid;

valeric acid; maleic acid; 3-methylbutanoic acid; L-glutamic acid; 2,4-dihydroxybenzoic acid; 3-phenylpropionic acid; isocaproic acid; (L)-(+)-isoleucine; L-malic acid; L-2-aminopropionic acid; L-glutamine; L-hydroxyproline; L-proline; L-serine; L-threonine; L-valine; Phenoxyacetic acid; 2-ethylbutyrinc acid; L-leucine; L-asparagine; levulinic acid; (S)-(-)-cysteine; DL-aspartic acid; 4-hydroxybenzoic acid; diphenylacetic acid; glutaric acid; 0-toluic acid; pivalic acid; DL-malic acid; beta-alanine; (S)-(-)-tryptophan; malonic acid; mandelic acid;

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glycolic acid;
terephthalic acid;
1-hydroxy-2-naphthoic acid;
4-aminosalicylic acid;
orotic acid;
gallic acid;
gentisic acid;
pamoic acid;
n-butyric acid;
n-hexanoic acid;
2-furancarboxylic acid;
p-acetamidobenzoic acid;
galactaric acid;
lactobionic acid;
2-mercaptobenzoic acid;
3-cyclopentylpropionic acid;
DL-lysine;
cinnamic acid;
dichloroacetic acid;
octanoic acid;
isobutyric acid;
anisic acid;
enanthoic acid;
hippuric acid;
tiglic acid;
cyclohexanecarboxylic acid;
m-methoxybenzoic acid;
D-(+)-camphoric acid; and
cyclohexylacetic acid.
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Claim 54 (currently amended). The cocrystal of claim 43, wherein the guest is a carboxylic an acid selected from the group consisting of:

ascorbic acid;

glucoheptonic acid;
sebacic acid;
alginic acid;
cyclamic acid;
ethane-1,2-disulfonic acid;
2-hydroxyethanesulfonic acid;
2-oxo-glutaric acid;
naphthalene-1,5-disulfonic acid;
nicotinic acid;
pyroglutamic acid; and
4-acetamidobenzoic acid.

Claim 55 (original). The cocrystal of claim 43, wherein the guest is selected from the group consisting of benzoic acid, succinic acid, and fumaric acid.

Claim 56 (original). A cocrystal comprising a guest and an active agent, wherein the guest is an amine salt which provides a counterion, and the active agent is a carboxylic acid.

Claim 57 (original). A method of generating a cocrystal comprising: adding a minor amount of an organic solvent separately to a solid active agent and a guest;

melting the active agent to form a solution of the API and the organic solvent; melting the guest to form a solution of the guest and the organic solvent; forming a mixture of the two solutions; and solidifying the resulting mixture to form a cocrystal of the active agent and the guest.

Claim 58 (original). A method of preparing a cocrystal of a salt of an active agent and a guest, said method comprising:

selecting a salt of an active agent, wherein said salt comprises the active agent and a counterion;

theorizing coordination of the counterion by hydrogen bond interactions within said crystal;

selecting a guest to coordinate more strongly with the counterion than the coordination within said crystal;

preparing a solution, melt or physical mixture comprising the active agent, the counterion, and the guest;

subjecting the solution or melt to a crystallization process, or the physical mixture to grinding;

forming a cocrystal comprising the salt of the active agent and the guest, wherein the counterion is coordinated with the guest through strong hydrogen bond interactions.

Claim 59 (original). The method of claim 58, wherein the counterion is a negative counterion, and the guest is a stronger hydrogen bond donor for at least one coordination site than the active agent.

Claim 60 (original). The method of claim 58, wherein the crystal contains at least one C-H hydrogen bond donor with the counterion, and the guest replaces said at least one C-H hydrogen bond donor with at least one O-H hydrogen bond donor.

Claim 61 (original). A method of modifying one or more physical properties of a drug formulation, the drug formulation comprising an API, said method comprising:

forming cocrystals of the API with a plurality of guests;

measuring at least one physical property of said cocrystals;

assessing the effect of each guest on said at least one physical property; and

preparing the drug formulation from one of said cocrystals having a desired physical property.

Claim 62 (original). The method of claim 61, wherein the API is a neutral API.

Claim 63 (original). The method of claim 61, wherein the API is provided as a salt.

Claim 64 (original). A method of preparing a cocrystalline pharmaceutical composition, said method comprising:

obtaining a salt of an active pharmaceutical ingredient, wherein the salt has a negative counterion other than chloride;

substituting chloride for the negative counterion in the obtained salt; and cocrystallizing the substituted salt with a suitable guest.

Claim 65 (original). A method of preparing a cocrystal from a hydrate, wherein the cocrystal comprises a salt and a neutral guest, and wherein the salt comprises an active agent and a counterion, said method comprising:

providing a hydrate of the salt comprising water of hydration; selecting a guest to coordinate with the counterion;

preparing a solution, melt or physical mixture comprising the hydrate and the guest; subjecting the solution or melt to a crystallization process or the physical mixture to grinding; and

forming a cocrystal comprising the salt of the active agent and the guest.

Claim 66 (original). The method of claim 65, wherein the guest coordinates more strongly with the counterion than the water of hydration coordinates with the counterion.

Claim 67 (original). A method of preparing a cocrystal from a solvate, wherein the cocrystal is not a solvate and comprise a salt and a neutral guest, and wherein the salt comprises an active agent and a counterion, said method comprising:

providing a solvate of the salt comprising solvent molecules coordinated with the salt; selecting a guest to coordinate more strongly with the counterion than the solvent; preparing a solution, melt or physical mixture comprising the solvate and the guest; subjecting the solution or melt to a crystallization process or the physical mixture to grinding; and

forming a cocrystal comprising the salt of the active agent and the guest.

Claim 68 (original). The method of claim 67, wherein the guest coordinates more strongly with the counterion than the solvent water of hydration coordinates with the counterion.

Claim 69 (new). The cocrystal of claim 43, wherein the guest is a sulfonic acid.

Claim 70 (new). The cocrystal of claim 69, wherein the guest is

methanesulfonic acid,
trifluoromethanesulfonic acid,
ethanesulfonic acid,
ethane-1,2-disulfonic acid,
2-hydroxyethanesulfonic acid,
dodecylsulfonic acid,
D(+)-10-camphorsulfonic acid,
1R-(-)-camphorsulfonic acid,
benzenesulfonic acid,
naphthalene-1,5-disulfonic acid,
1,5-naphthalenesulfonic acid disodium salt,
naphthalene-2-sulfonic acid sodium salt,
p-toluenesulfonic acid, or
5-formyl-2-furansulfonic acid sodium salt.

Claim 71 (new). The cocrystal of claim 43, wherein the **guest counterion** is a bromide.

Claim 72 (new). The cocrystal of claim 43, wherein the guest counterion is a sulfate.

Claim 73 (new). The cocrystal of claim 43, wherein the guest is a caroxylic acid.

Claim 74 (new). The cocrystal of claim 73, wherein the counterion is a carboxylate.

Claim 75 (new). The cocrystal of claim 43, wherein the guest is a sulfonic acid.

Claim 76 (new). A cocrystal comprising a salt and a guest, wherein the salt comprises an active agent and a counterion, wherein the counterion is provided by a sulfonic acid or sulfonate.

Claim 77 (new). The cocrystal of claim 76, wherein the counterion is provided by methanesulfonic acid,

naphthalene-2-sulfonic acid, naphthalene-1,5-disulfonic acid, p-toluenesulfonic acid, 2-hydroxyethanesulfonic acid, or ethanesulfonic acid.

Claim 78 (new). The cocrystal of claim 76, wherein the counterion is provided by methanesulfonic acid, trifluoromethanesulfonic acid, ethanesulfonic acid, ethane-1,2-disulfonic acid, ethanedisulfonic acid, 2-hydroxy, monosodium salt, 2-hydroxyethanesulfonic acid, dodecylsulfonic acid, D(+)-10-camphorsulfonic acid, 1R-(-)-camphorsulfonic acid, benzenesulfonic acid, naphthalene-1,5-disulfonic acid, 1,5-naphthalenesulfonic acid disodium salt, naphthalene-2-sulfonic acid, 2-naphthalenesulfonic acid sodium salt, p-toluenesulfonic acid, or 5-formyl-2-furansulfonic acid sodium salt.

Claim 79 (new). The cocrystal of claim 76, wherein the active agent comprises an amine, and said amine forms a salt with the counterion.

Claim 80 (new). The cocrystal of claim 79, wherein the amine is a tertiary amine.

Claim 81 (new). The cocrystal of claim 76, wherein the guest is a neutral guest.

Claim 82 (new). The cocrystal of claim 76, wherein the guest is a carboxylic acid or carboxylate.

Claim 83 (new). The cocrystal of claim 76, wherein the guest is a sulfonic acid or sulfonate.

Claim 84 (new). The cocrystal of claim 76, wherein the guest is a carboxylic acid having at least four carbon atoms.

Claim 85 (new). The cocrystal of claim 76, wherein the guest is selected from the group consisting of the guests set forth in Table 1.

Claim 86 (new). The cocrystal of claim 76, wherein the guest is selected from the group consisting of the guests set forth in Table 2.

Claim 87 (new). The cocrystal of claim 76, wherein the guest is selected from the group consisting of the guests set forth in Table 3.

Claim 88 (new). The cocrystal of claim 76, wherein the guest is an acid selected from the group consisting of:

sorbic acid;

L-(+)-tartaric acid;

citric acid;

benzoic acid;

aspirin;

lactic acid;

fumaric acid;

(S)-(+)-arginine;

glycine;

(S)-(-)-histidine;

(S)-(+)-lysine;

DL-tartaric acid;

(S)-(-)-phenylalanine;

(S)-(-)-tyrosine;

phenylacetic acid;

adipic acid; pyruvic acid; succinic acid; niacin; 4-aminobenzoic acid; o-methylbenzoic acid; valeric acid; maleic acid; 3-methylbutanoic acid; L-glutamic acid; 2,4-dihydroxybenzoic acid; 3-phenylpropionic acid; isocaproic acid; (L)-(+)-isoleucine; L-malic acid; L-2-aminopropionic acid; L-glutamine; L-hydroxyproline; L-proline; L-serine; L-threonine; L-valine; Phenoxyacetic acid; 2-ethylbutyrinc acid; L-leucine; L-asparagine; levulinic acid; (S)-(-)-cysteine; DL-aspartic acid; 4-hydroxybenzoic acid; diphenylacetic acid; glutaric acid; 0-toluic acid;

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pivalic acid;
DL-malic acid;
beta-alanine;
(S)-(-)-tryptophan;
malonic acid;
mandelic acid;
glycolic acid;
terephthalic acid;
1-hydroxy-2-naphthoic acid;
4-aminosalicylic acid;
orotic acid;
gallic acid;
gentisic acid;
pamoic acid;
n-butyric acid;
n-hexanoic acid;
2-furancarboxylic acid;
p-acetamidobenzoic acid;
galactaric acid;
lactobionic acid;
2-mercaptobenzoic acid;
3-cyclopentylpropionic acid;
DL-lysine;
cinnamic acid;
dichloroacetic acid;
octanoic acid;
isobutyric acid;
anisic acid;
enanthoic acid;
hippuric acid;
tiglic acid;
cyclohexanecarboxylic acid;
m-methoxybenzoic acid;
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D-(+)-camphoric acid; and cyclohexylacetic acid.

Claim 89 (new). The cocrystal of claim 76, wherein the guest is an acid selected from the group consisting of:

ascorbic acid;
glucoheptonic acid;
sebacic acid;
alginic acid;
cyclamic acid;
ethane-1,2-disulfonic acid;
2-hydroxyethanesulfonic acid;
2-oxo-glutaric acid;
naphthalene-1,5-disulfonic acid;
nicotinic acid;
pyroglutamic acid; and
4-acetamidobenzoic acid.

Claim 90 (new). The cocrystal of claim 76, wherein the guest is selected from the group consisting of benzoic acid, succinic acid, and fumaric acid.

Claim 91 (new). The cocrystal of claim 76, wherein the active agent comprises an active pharmaceutical ingredient.

Claim 92 (new). The cocrystal of claim 76, wherein the active agent comprises a nutraceutical.

Claim 93 (new). The cocrystal of claim 76, wherein the active agent comprises an agricultural chemical.

Claim 94 (new). The cocrystal of claim 76, wherein the active agent comprises a pigment.

Claim 95 (new). The cocrystal of claim 76, wherein the active agent comprises a dye.

Claim 96 (new). The cocrystal of claim 76, wherein the active agent comprises an explosive.

Claim 97 (new). The cocrystal of claim 76, wherein the active agent comprises a polymer additive.

Claim 98 (new). The cocrystal of claim 76, wherein the active agent comprises a lubricant additive.

Claim 99 (new). The cocrystal of claim 76, wherein the active agent comprises a photographic chemical.